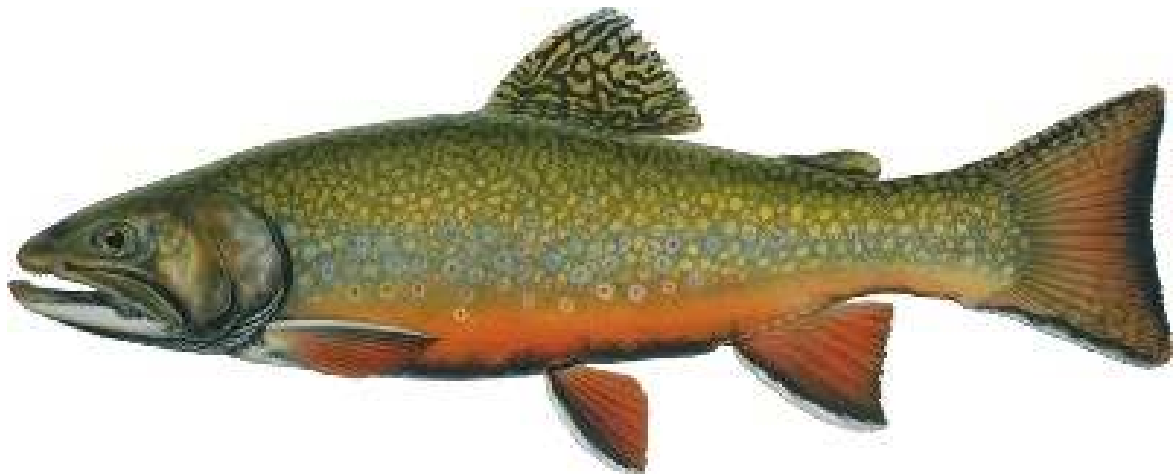

Fishing Fun Supplemental Guide



The materials in this kit were funded by a generous grant #11660 from the Chesapeake Bay Trust and from Maryland Department of Natural Resources Wildlife & Heritage Service (<http://www.dnr.maryland.gov/>).

This kit has been designed to supplement Fishing Fun, a Growing Up WILD activity. Growing Up WILD is an early childhood education program designed to teach kids aged 3-7 about nature through interdisciplinary, developmentally appropriate activities. Growing Up WILD has been aligned with Common Core (K-2), Head Start Domains, NAEYC standards and Maryland Environmental Literacy Standards.

Growing Up WILD materials are copyrighted by the Council for Environmental Education (CEE). The Growing Up WILD guide with 27 activities can be purchased directly from CEE (www.projectwild.org) or can be obtained by attending a workshop in Maryland. Check out the Maryland Dept. of Natural Resources website (www.dnr.maryland.gov/wildlife/Education/ProjectWild/GrowingUpWild.asp) to find out about upcoming workshops or contact Kerry Wixted at 410-260-8566, kwixted@dnr.state.md.us. Workshops can be set up for free with your organization if a minimum number of participants can be achieved.

Fishing Fun Kit Contents:

1. 6 Magnetic fishing rods
2. 10 laminated fish
3. Fish Eyes: a Book You Can Count on
4. Trout Are Made of Trees book
5. Fishing in a Brook book
6. Brook Trout replica
7. Largemouth Bass replica
8. Laminated activity, fish guide, resource guide & CD

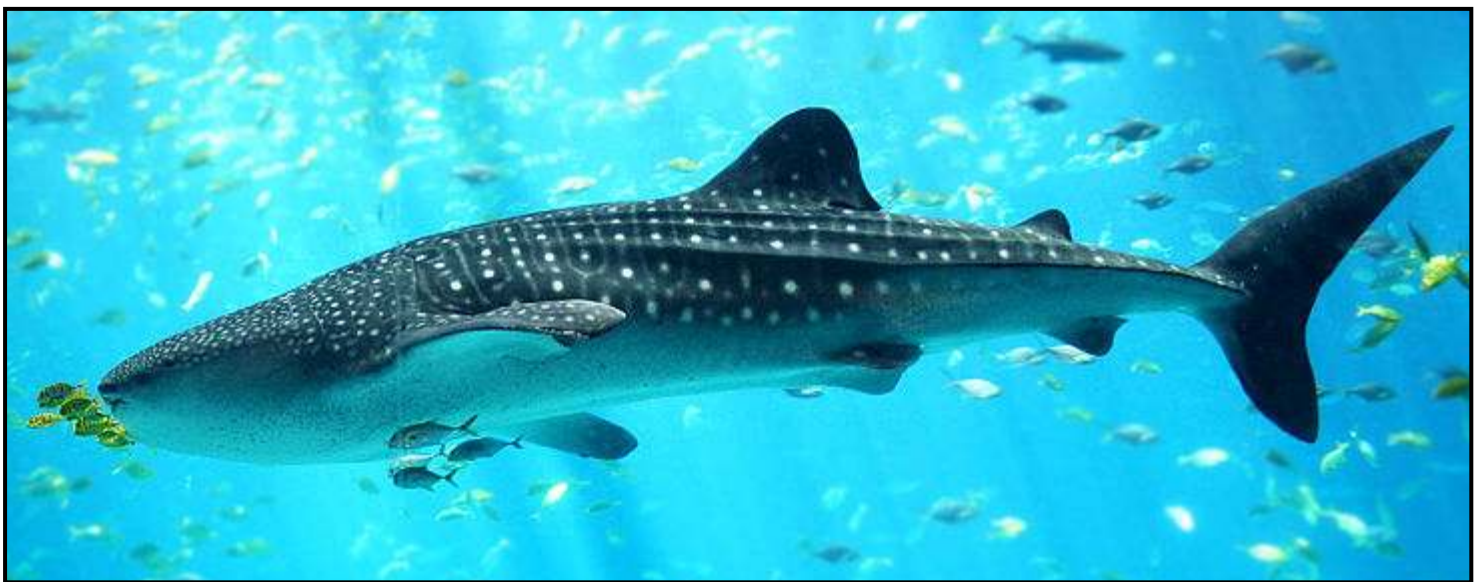
What is a Fish?

Fish are typically cold-blooded, vertebrate animals that breathe through gills and possess fins. Many types of aquatic animals commonly referred to as "fish" are not actually fish; examples include shellfish, cuttlefish, starfish, crayfish and jellyfish. In earlier times, even biologists did not make a distinction – sixteenth century natural historians classified also seals, whales, amphibians, crocodiles, even hippopotamuses, as well as a host of aquatic invertebrates, as fish!

There are over 25,000 species of fish worldwide with some living in freshwater while others can tolerate brackish or saltwater. Fish live in nearly every large body of water in the world including streams, rivers, ponds, lakes, and oceans. Some fish live on the surface of the water and some live in the very depths of the ocean. The three main classes of fish living today are:

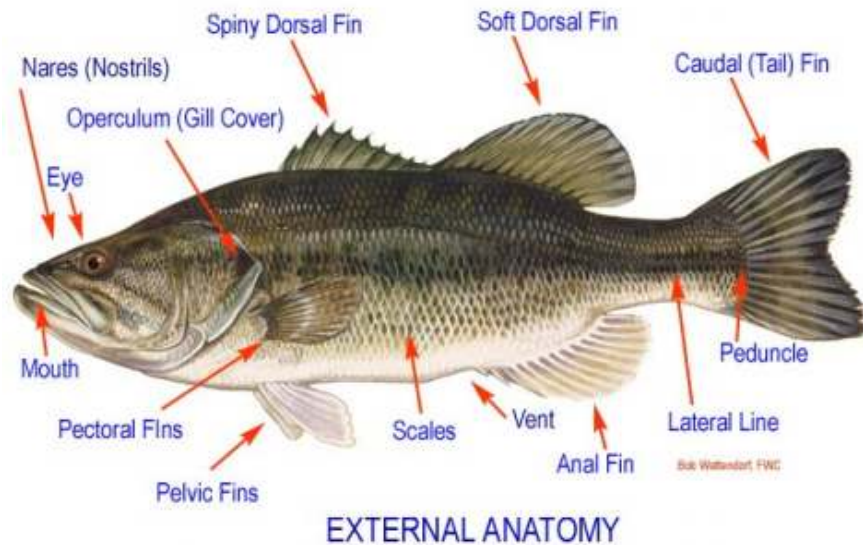
1. **Jawless fish** (Class Agnatha)- includes lampreys and hagfish
2. **Cartilaginous fish** (Class Chondrichthyes) – includes sharks, rays and chimeras
3. **Bony fish** (Class Osteichthyes)- includes everything else

The largest fish species in the world is the whale shark which can get up to 51 feet long, while the smallest fish species is the stout infantfish which gets up to ¼ inch long. Most fish reproduce by laying eggs, though some fish, such as great white sharks, give birth to live babies called **pups**. Some fish like sharks don't possess an air bladder to help keep them afloat and must either swim continually or rest on the bottom. Some species of fish can fly (glide) while others can skip along the surface and others can even climb rock.



Whale shark by Wikimedia Commons

Fish have a specialized sense organ called the **lateral line** which works much like radar and helps them navigate in dark or murky water. **Fins** are appendages used by the fish to maintain its position, move, steer and stop. They are either single fins along the

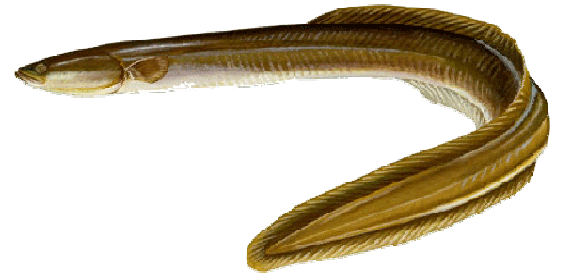


centerline of the fish, such as the **dorsal** (back) fins, **caudal** (tail) fin and **anal** fin, or paired fins, which include the **pectoral** (chest) and **pelvic** (hip) fins. Fishes such as catfish have another fleshy lobe behind the dorsal fin, called an **adipose** (fat) fin that is not illustrated here. The dorsal and anal fins primarily help fish to not roll over onto their sides. The caudal fin is the main fin for propulsion to move the fish forward. The paired fins assist with steering, stopping and hovering.

Laminated Fish

1. American Eel (*Anguilla rostrata*)

- a. Some people think an eel looks like a snake, but if you look closely you will see that it has fins. The American eel has pectoral fins and a very long, continuous fin which is the dorsal fin, anal fin, and tail fin combined. Eels can grow over 3 feet long. Eels can be found along Greenland south along the Atlantic coast of Canada and the United States to Panama, and throughout much of the West Indies south to Trinidad. They eat a variety of fish, insects, snail, clams, and worms. Interestingly enough, every American eel ever caught in rivers, bays, and ponds in the Bay was hatched from an egg below the surface of the Sargasso Sea, southwest of Bermuda.



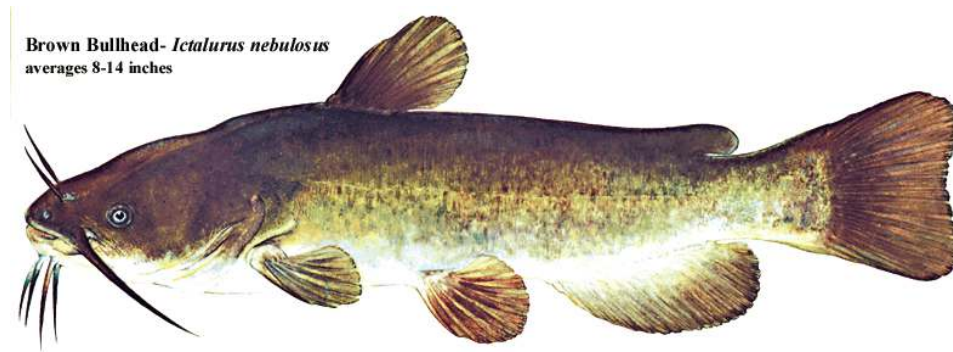
2. Brook Trout (*Salvelinus fontinalis*)

- a. Brook trout have cream colored spots on a dark background while all other trout species in Maryland have dark spots on a light background. Brook trout are the only trout species native to Maryland. They can be found in clean, clear, and cold streams from eastern Canada throughout the northeastern United States. Brook trout are opportunistic feeders and will feast upon anything that falls in the stream, though they do tend to prefer aquatic insects. Interestingly enough, despite being a popular sport fish, the Maryland Department of Natural Resources does not rear or stock brook trout. Brook trout normally associated with hatchery production are considered a threat to the genetic integrity of the native brook trout.



3. Brown Bullhead (*Ameiurus nebulosus*)

- a. Brown bullhead are in the bullhead catfish family and are widely distributed in North America. Brown bullheads are light to dark mottled on the sides and have a lighter underside with dark chin barbels. Brown bullhead are typically small fish, less than 12 inches in length, but larger fish can be found. The brown bullhead thrives in a variety of habitats, including lakes and ponds with low oxygen and/or muddy conditions. In many areas of the United States, brown bullheads are opportunistic bottom feeders. They eat insects, leeches, snails, fish, clams, and many plants. Interestingly enough, the brown bullhead was among the first fish introduced to the West Coast, as early as 1874.



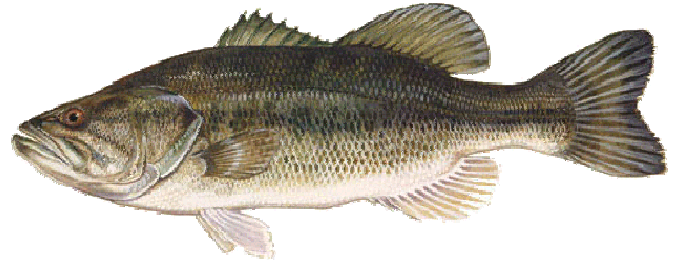
4. Channel Catfish (*Ictalurus punctatus*)

- a. Channel catfish are members of the bullhead catfish family, Ictaluridae, and are a freshwater species that are commonly found in estuarine waters. Channel catfish are long slender fish with barbels on the chin that look like long black whiskers. There are four pairs of barbels around the mouth, two on the chin, one at the angle of the mouth, and one behind the nostril. The native range of channel catfish extends from southern Canada, through the Great Lakes and central United States drainage system, to Mexico including all the Gulf states and some of the Atlantic coast. However, due to extensive introductions, their current range includes all of the Pacific and Atlantic drainage systems in the 48 continental states. Catfish are primarily bottom feeders that feed at night. Channel catfish are **omnivorous**, meaning they eat both plants and animals. Common food items include aquatic plants and seeds, fish, mollusks, insects and their larvae, and crustaceans. Interestingly enough, the sportfishing world record is a specimen from South Carolina that weighed 58 pounds.



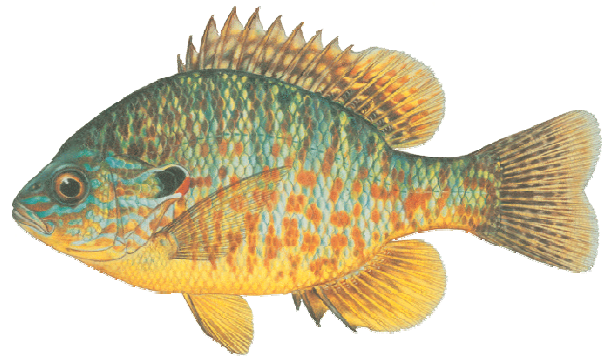
5. Largemouth Bass (*Micropterus salmoides*)

- a. Largemouth bass can be recognized by the lower jaw which extends past the back edge of the eye. It is dark green above with silvery sides and belly. Largemouth bass are not native to Maryland. Originally, largemouth bass are from the Great Lake and Mississippi River basins; however, the species is now found throughout North America and much of the world. Largemouth bass feed on minnows, perch, sunfish, gizzard shad, small mammals, insects, frogs and occasionally snakes. Interestingly enough, this species is considered the most popular sportfish in the United States.



6. Pumpkinseed (*Lepomis gibbosus*)

- a. Pumpkinseeds are members of the sunfish family and are orange, green, yellow or blue in color, with speckles over their sides and back and a yellow-orange breast and belly. The coloration of the scales of the pumpkinseed is one of the most vibrant of any freshwater fish and can range from an olive-green or brown to bright orange and blue. Pumpkinseeds have been introduced throughout all of North America but are primarily found in the northeastern United States. The pumpkinseed's natural range is from New Brunswick down the east coast to South Carolina. Pumpkinseeds feed on a variety of small food both at the surface of the water and at the bottom. Among their favorites are insects, mosquito larva, small mollusks and other crustaceans, worms, minnow fry and even other smaller pumpkinseeds. Interestingly enough, the eye spot, aka the dark patch at the posterior of the gill plate, provides the illusion that the eye of the fish is larger and positioned further back on the body, thus making the fish seem up to four times larger than it actually is. When a pumpkinseed feels threatened by a predator, it will flare its gills to make it seem larger in size, and show off the flashy red coloration.



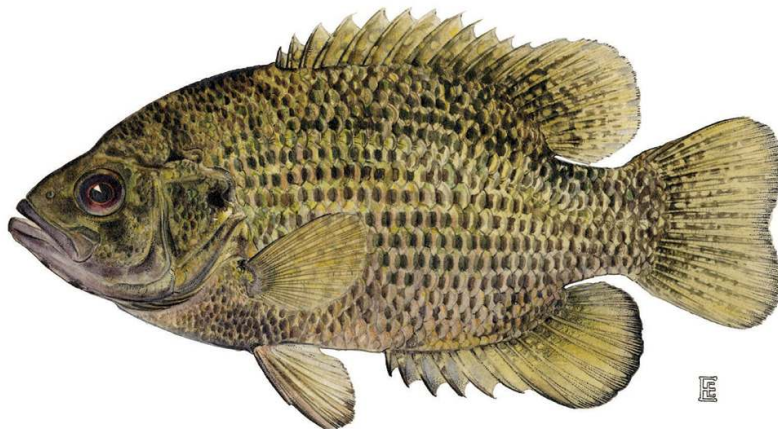
7. Rainbow Trout (*Oncorhynchus mykiss*)

- a. For the most part, Maryland rainbow trout have a greenish silver back and a silver sides with a faint red band that travel the length of the lateral line. They are heavily spotted along the sides and top to include the dorsal and tail fins. Rainbow trout were transplanted to Maryland from the West Coast of United States. They are native to the Pacific slope from the mountains in northern Mexico through the western United States around Alaska and the Bering Sea to the northern regions of Asia. Like other trout species, rainbows are opportunistic feeders and consume a large variety of aquatic and terrestrial insects and macroinvertebrates. Interestingly enough, over 500,000 adult rainbow trout are reared annually at State trout hatcheries and rearing stations.



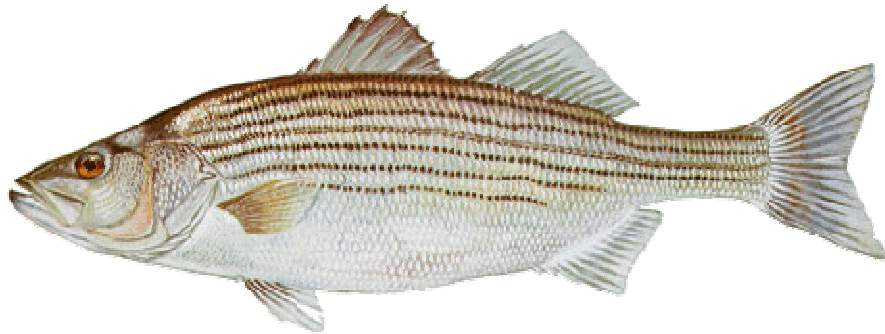
8. Rock Bass (*Ambloplites rupestris*)

- a. Rock bass are native to fresh water in east-central North America. This heavy bodied member of the sunfish family can be readily distinguished from other similar species by the six spines in the anal fin (other typical sunfishes have only three anal fin spines). Rock bass also have red eyes. The rock bass prefers clear, rocky, and vegetated stream pools and lake margins. They eat aquatic insects, crayfish, and small fish, including their own young, yellow perch, and minnows. Interestingly enough, some rock bass can live up to 12 years!



9. Striped Bass (*Morone saxatilis*)

- a. The striped bass is a silvery fish that gets its name from the seven or eight dark, continuous stripes along the side of its body. On the Atlantic coast, striped bass range from St. Lawrence River, Canada to St. Johns River, Florida, although they are most prevalent from Maine to North Carolina. Striped bass tend to move north to near shore waters of the New England coast during the summer and south to the North Carolina/Virginia Capes during the winter. The east coast migratory population is composed of three major stocks - Hudson, Chesapeake, and Roanoke. The Chesapeake Bay and its tributaries are the primary spawning and nursery area for 70-90% of the Atlantic coast stocks of striped bass. Juveniles feed on small shrimp and other crustaceans, annelid worms, and insects. Adults feed on a wide variety of fishes, crustaceans, squids, mussels, and worms. Interestingly enough, the striped bass is Maryland's state fish.



10. Yellow Perch (*Perca flavescens*)

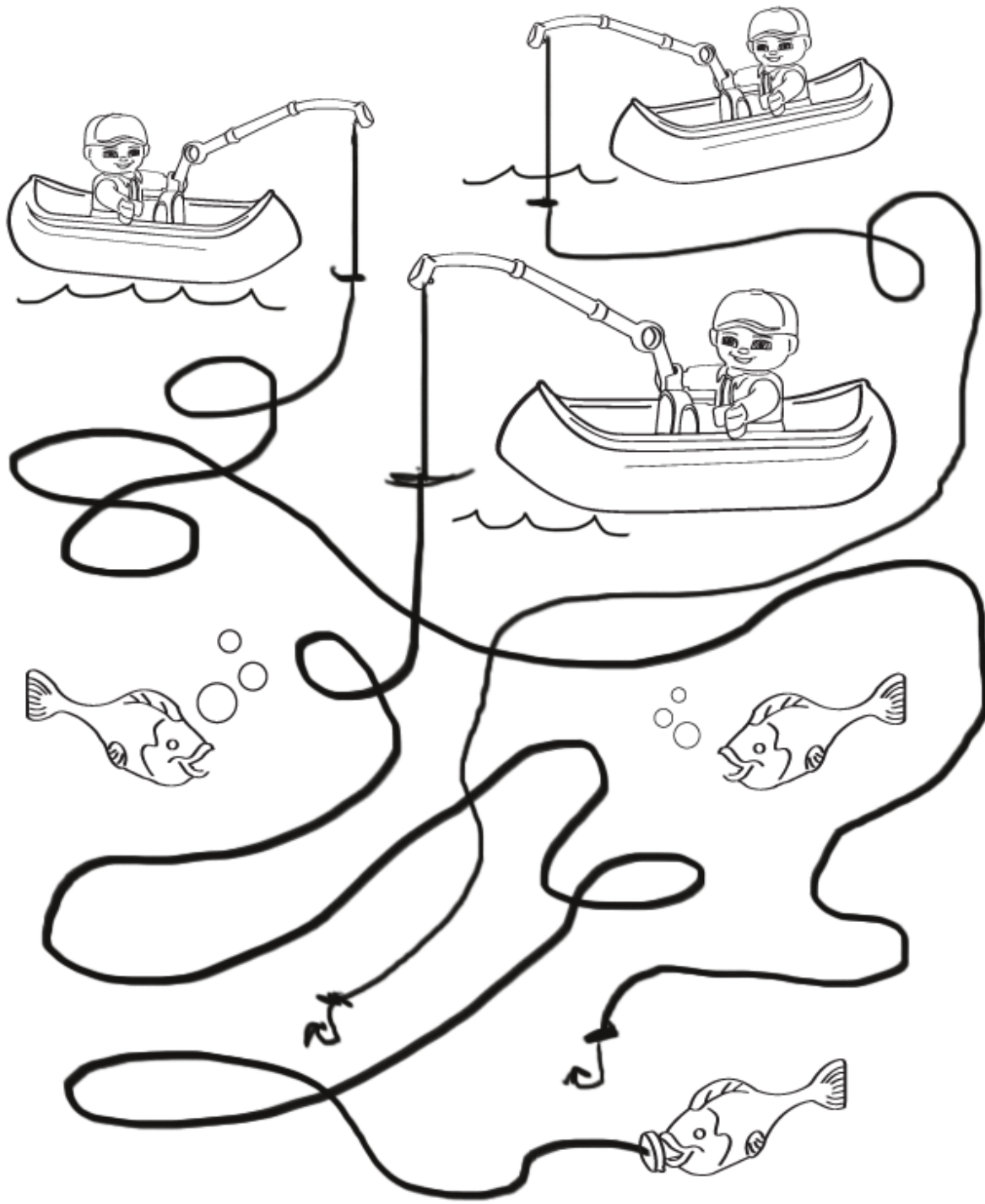
- a. The general coloring of yellow perch tends to be brassy green to golden yellow on their sides and white to yellow on their belly. Their most distinguishing feature is 6-8 dark vertical bands found across their back and sides. On the Atlantic coast, yellow perch range from South Carolina north to Nova Scotia. They can also be found west through the southern Hudson Bay region to Saskatchewan, and south to the northern half of the Mississippi drainage. Adult yellow perch inhabit slow-moving, near shore areas where moderate amounts of vegetation provide cover, food and protection. Adults will feed on insect larvae, crustaceans, and/or small fish, depending on the forage base available. Larval yellow perch feed on zooplankton. Interestingly enough, their method of spawning is unique in that female yellow perch lay their eggs in long gelatinous strands, usually floating or hanging from vegetation or some other structure.



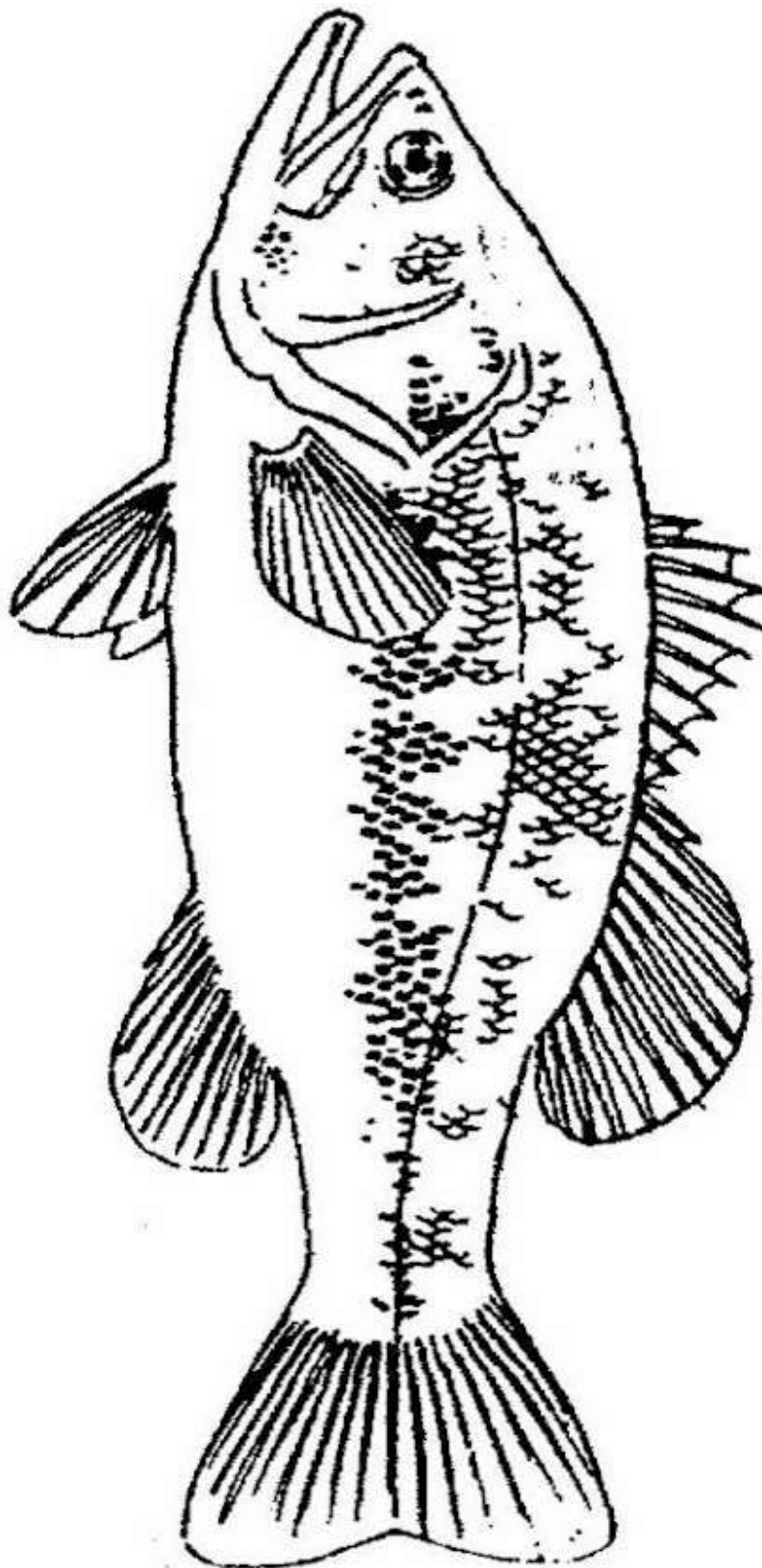
Additional Fish Activities

Fishing Line Maze

Circle the fisherman who caught the fish!



Bass Coloring Page



Fishy Songs

S-A-L-T-Y

(to the tune of BINGO)

There was a fish, he loved to swim

And Salty was his Name-O

S - A - L - T - Y

S - A - L - T - Y

S - A - L - T - Y

And Salty was his Name-O

Substitute a hand clap for the letter S as you sing the song another time.

Repeat again with clap-clap

substituted for S-A. Continue substituting claps for letters until you are clapping out the entire name.



I'm a Little Fish

(to the tune of I'm a Little Teapot)

I'm a little fish, I like to swim

(put hands in prayer position facing away from you... they're the fish. Wiggle them back and forth like a fish swimming through the water.)

You can't catch me, 'cause I have fins

(shake finger back and forth "no no no")

When I swim past my friends, I hear them say

(put hand to ear like you're listening)

Stop your swimming and come and play!

(make a STOP gesture with hand and then jump up in the air)

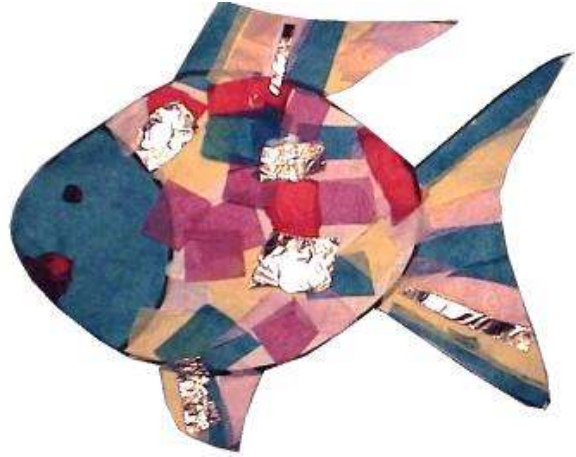


Rainbow Fish Craft

From: http://www.dltk-teach.com/books/rainbowfish/rainbow_fish_craft.htm

Materials:

- template of the fish (or you can draw your own)
- 1/2 inch or so pieces of various colored tissue paper or construction paper
- small amount of tinfoil
- thin strips of various colored tissue paper or construction paper
- one big blue piece of tissue or construction paper OR a blue marker or crayon
- glue
- scissors



Instructions:

1. Print rainbow fish template on next page (or draw the outline of a fish on a piece of paper)
2. Color the head in blue, or glue on a piece of tissue or construction paper. It doesn't have to be perfect as we're going to cut out the fish at the end.
3. Glue strips of various colored tissue or construction paper on the fins and tail (see photo).
4. Glue 1/2 inch (ish) squares of tissue paper or construction paper onto the body.
5. Glue a few strips and 1/2 inch squares of tinfoil over the fish (or just glue on one square scale to show Rainbow Fish after he shared).
6. Cut out along the lines (if you used tissue paper you'll be able to see the lines through it... if you used construction paper, just estimate where the lines are). This step will require adult assistance for younger children.

Rainbow Fish Craft (Cont'd)

From: http://www.dltk-teach.com/books/rainbowfish/rainbow_fish_craft.htm

